

What is claimed is:

1. An expandable sand control screen that is positionable within a wellbore having a wellbore profile comprising:

a generally tubular member that is expanded downhole, the generally tubular member having drainage openings that allow the flow of production fluids therethrough; and

a filtering assembly disposed exteriorly of the generally tubular member, the filtering assembly preventing the flow of particulate material of a predetermined size therethrough but allowing the flow of production fluids therethrough and having a thickness that is radially variable downhole responsive to the wellbore profile.

2. The expandable sand control screen as recited in claim 1 wherein the filtering assembly further comprises a filter medium that prevents the flow of particulate material of a predetermined size therethrough but allows the flow of production fluids therethrough and a compliant member that has a thickness that is radially variable downhole responsive to the wellbore profile and that allows the flow of production fluids therethrough.

3. The expandable sand control screen as recited in claim 2 wherein the filter medium further comprises a plurality of layers of wire mesh that are bonded together to form a porous wire mesh screen.

4. The expandable sand control screen as recited in claim 2 wherein the filter medium further comprises a protective outer shroud.

5. The expandable sand control screen as recited in claim 2 wherein the compliant member further comprises a compressible filler material disposed exteriorly of the filter medium that resiliently recovers downhole toward the wellbore in void regions.

6. The expandable sand control screen as recited in claim 5 wherein the compressible filler material further comprises an open cell foam.

7. The expandable sand control screen as recited in claim 6 wherein the open cell foam is selected from a group consisting of resins, polyolefins, polyurethanes, polyvinylchlorides, metals and ceramics.

8. The expandable sand control screen as recited in claim 5 wherein the compressible filler material further comprises material selected from the group consisting of fiberglass wools and steel wools.

9. The expandable sand control screen as recited in claim 5 wherein the compressible filler material further comprises at least one permeable section and at least one impermeable section.

10. The expandable sand control screen as recited in claim 5 further comprising a removable outer wrapper disposed exteriorly of the compressible filler material to temporarily maintain the compressible filler material in a compressed position.

11. The expandable sand control screen as recited in claim 10 wherein the removable outer wrapper is shrinkable to place the compressible filler material in a compressed configuration.

12. The expandable sand control screen as recited in claim 10 wherein the removable outer wrapper is selected from the group consisting of mechanically removable outer wrappers, chemically removable outer wrappers, thermally removable outer wrappers, dissolvably removable outer wrappers and biodegradably removable outer wrappers.

13. The expandable sand control screen as recited in claim 10 wherein the removable outer wrapper further comprises a film.

14. The expandable sand control screen as recited in claim 10 wherein the removable outer wrapper further comprises a strap.

15. The expandable sand control screen as recited in claim 10 wherein the removable outer wrapper is selected from a group consisting of polymers, metals and ceramics.

16. The expandable sand control screen as recited in claim 5 further comprising a treatment chemical impregnated into the compressible filler material.

17. The expandable sand control screen as recited in claim 16 wherein the treatment chemical is selected from a group consisting of powders, tablets and beads.

18. The expandable sand control screen as recited in claim 16 wherein the treatment chemical is selected from a group consisting of mud breakers, oxidizers, enzymes, hydrolyzable esters, acids, scale inhibitors, biocides, corrosion inhibitors and paraffin inhibitors.

19. The expandable sand control screen as recited in claim 16 further comprising solid materials impregnated into the compressible filler material that are selected from a group consisting of sand, gravel, proppants and beads.

20. The expandable sand control screen as recited in claim 2 wherein the compliant member further comprises a crushable layer having a thickness that is radially reducible in response to contact between at least a portion of the expandable sand control screen and the wellbore when the expandable sand control screen is expanded downhole.

21. The expandable sand control screen as recited in claim 20 wherein the crushable layer is disposed between the filter medium and the generally tubular member.

22. The expandable sand control screen as recited in claim 20 wherein the crushable layer is disposed exteriorly of the filter medium.

23. The expandable sand control screen as recited in claim 20 wherein the crushable layer further comprises a honeycomb structure.

24. The expandable sand control screen as recited in claim 20 wherein the crushable layer further comprises a multi layer honeycomb structure.

25. The expandable sand control screen as recited in claim 20 wherein the crushable layer further comprises a plurality of crushable elements.

26. The expandable sand control screen as recited in claim 20 wherein the crushable layer further comprises a mesh structure.

27. The expandable sand control screen as recited in claim 20 wherein the crushable layer further comprises a corrugated structure.

28. The expandable sand control screen as recited in claim 20 wherein the crushable layer is constructed from a metal.

29. The expandable sand control screen as recited in claim 20 wherein the crushable layer is constructed from a stainless steel.

30. The expandable sand control screen as recited in claim 1 wherein the filtering assembly further comprises a crushable filter medium disposed exteriorly of the tubular member having a thickness that is radially reducible in response to contact between at least a portion of the expandable sand control screen and the wellbore when the expandable sand control screen is expanded downhole and that prevents the flow of particulate material of a predetermined size therethrough but allows the flow of production fluids therethrough.

31. The expandable sand control screen as recited in claim 30 wherein the crushable filter medium further comprises a plurality of layers of wire mesh that are bonded together to form a fluid porous wire mesh crushable filter medium.

32. The expandable sand control screen as recited in claim 30 wherein the crushable filter medium further comprises a layer of relatively fine wire mesh positioned between layers of relatively coarse wire mesh.

33. The expandable sand control screen as recited in claim 30 wherein the crushable filter medium is constructed from a metal.

34. The expandable sand control screen as recited in claim 30 wherein the crushable filter medium further comprises a honeycomb structure.

35. The expandable sand control screen as recited in claim 30 wherein the crushable filter medium further comprises a multi layer honeycomb structure.



36. The expandable sand control screen as recited in claim 30 wherein the crushable filter medium further comprises a mesh structure.

37. The expandable sand control screen as recited in claim 30 wherein the crushable filter medium further comprises a corrugated structure.

38. An expandable sand control screen that is positionable within a wellbore comprising:

a generally tubular member having drainage openings that allow the flow of production fluids therethrough;

a filter medium disposed exteriorly of the generally tubular member that prevents the flow of particulate material of a predetermined size therethrough but allows the flow of production fluids therethrough; and

a crushable layer disposed exteriorly of the generally tubular member having a thickness that is radially reducible in response to contact between at least a portion of the expandable sand control screen and the wellbore when the expandable sand control screen is expanded downhole and that allows the flow of production fluids therethrough.

39. The expandable sand control screen as recited in claim 38 wherein the crushable layer is disposed exteriorly of the filter medium.

40. The expandable sand control screen as recited in claim 38 wherein the crushable layer is disposed between the filter medium and the generally tubular member.

41. The expandable sand control screen as recited in claim 38 wherein the filter medium further comprises a plurality of layers of wire mesh that are bonded together to form a fluid porous wire mesh filter medium.

42. The expandable sand control screen as recited in claim 38 wherein the filter medium further comprises a layer of relatively fine wire mesh positioned between layers of relatively coarse wire mesh.

43. The expandable sand control screen as recited in claim 38 wherein the filter medium further comprises a protective outer shroud.

44. The expandable sand control screen as recited in claim 38 wherein the crushable layer further comprises a honeycomb structure.

45. The expandable sand control screen as recited in claim 38 wherein the crushable layer further comprises a multi layer honeycomb structure.

46. The expandable sand control screen as recited in claim 38 wherein the crushable layer further comprises a plurality of crushable elements.

47. The expandable sand control screen as recited in claim 38 wherein the crushable layer further comprises a mesh structure.

48. The expandable sand control screen as recited in claim 38 wherein the crushable layer further comprises a corrugated structure.

49. The expandable sand control screen as recited in claim 38 wherein the crushable layer is constructed from a metal.

50. The expandable sand control screen as recited in claim 38 wherein the crushable layer is constructed from a stainless steel.

51. An expandable sand control screen that is positionable within a wellbore comprising:

a generally tubular member that is expanded downhole having drainage openings that allow the flow of production fluids therethrough; and

a filter medium disposed exteriorly of the tubular member that prevents the flow of particulate material of a predetermined size therethrough but allows the flow of production fluids therethrough; and

a compressible filler material disposed exteriorly of the filter medium that resiliently recovers downhole toward the wellbore in void regions and allows the flow of production fluids therethrough.

52. The expandable sand control screen as recited in claim 51 wherein the filter medium further comprises a protective outer shroud.

53. The expandable sand control screen as recited in claim 51 wherein the compressible filler material is selected from the group consisting of open cell foams, steel wools and fiberglass wools.

54. The expandable sand control screen as recited in claim 53 wherein the open cell foam is selected from a group consisting of resins, polyolefins, polyurethanes, polyvinylchlorides, metals and ceramics.

55. The expandable sand control screen as recited in claim 51 wherein the compressible filler material further comprises at least one permeable section and at least one impermeable section.

56. The expandable sand control screen as recited in claim 51 further comprising a removable outer wrapper disposed exteriorly of the compressible filler material to temporarily maintain the compressible filler material in a compressed position.

57. The expandable sand control screen as recited in claim 56 wherein the removable outer wrapper is shrinkable to place the compressible filler material in the compressed position.

58. The expandable sand control screen as recited in claim 56 wherein the removable outer wrapper is selected from the group consisting of mechanically removable outer wrappers, chemically removable outer wrappers, thermally removable outer wrappers, dissolvably removable outer wrappers and biodegradably removable outer wrappers.

59. The expandable sand control screen as recited in claim 56 wherein the removable outer wrapper is selected from the group consisting of films and straps.

60. The expandable sand control screen as recited in claim 56 wherein the removable outer wrapper is selected from a group consisting of polymers, metals and ceramics.

61. The expandable sand control screen as recited in claim 56 further comprising a treatment chemical impregnated into the compressible filler material.

62. The expandable sand control screen as recited in claim 61 wherein the treatment chemical is selected from a group consisting of powders, tablets and beads.

63. The expandable sand control screen as recited in claim 61 wherein the treatment chemical is selected from a group consisting of mud breakers, oxidizers, enzymes, hydrolyzable esters, acids, scale inhibitors, biocides, corrosion inhibitors and paraffin inhibitors.

64. The expandable sand control screen as recited in claim 51 further comprising solid materials impregnated into the compressible filler material.

65. The expandable sand control screen as recited in claim 64 wherein the solid materials are selected from a group consisting of sand, gravel, proppants and beads.



66. A method of completing a wellbore comprising the steps of:

providing an expandable sand control screen having a filtering assembly disposed exteriorly of the generally tubular member;

running the expandable sand control screen into the wellbore;

expanding the expandable sand control screen downhole;  
and

radially varying the thickness of the filtering assembly downhole responsive to the wellbore profile.

67. The method as recited in claim 66 wherein the step of radially varying the thickness of the filtering assembly downhole responsive to the wellbore profile further comprises releasing a compressible filler material from a compressed configuration such that the compressible filler material resiliently recovers toward the wellbore in void regions.

68. The method as recited in claim 67 further comprising the step of disposing a removable outer wrapper exteriorly of the compressible filler material to temporarily maintain the compressible filler material in the compressed position.

69. The method as recited in claim 68 wherein the step of disposing a removable outer wrapper exteriorly of the compressible filler material to temporarily maintain the compressible filler material in the compressed position further comprises shrinking the removable outer wrapper to place the compressible filler material in the compressed position.

70. The method as recited in claim 68 further comprising the step selected from the group consisting of mechanically removing the removable outer wrapper downhole, chemically removing the removable outer wrapper downhole, thermally removing the removable outer wrapper downhole, dissolvably removing the removable outer wrapper downhole and biodegradably removing the removable outer wrapper downhole.

71. The method as recited in claim 66 wherein the step of radially varying the thickness of the filtering assembly downhole responsive to the wellbore profile further comprises radially reducing the thickness of at least a portion of a crushable layer in response to contact between at least a portion of the expandable sand control screen and the wellbore.

72. The method as recited in claim 71 wherein the step of radially reducing the thickness of at least a portion of the crushable layer further comprises radially reducing the thickness of at least a portion of a honeycomb structure.

73. The method as recited in claim 71 wherein the step of radially reducing the thickness of at least a portion of the crushable layer further comprises radially reducing the thickness of at least a portion of a multi layer honeycomb structure.

74. The method as recited in claim 71 wherein the step of radially reducing the thickness of at least a portion of the crushable layer further comprises radially reducing the thickness of at least a portion of a plurality of crushable elements.

75. The method as recited in claim 71 wherein the step of radially reducing the thickness of at least a portion of the crushable layer further comprises radially reducing the thickness of at least a portion of a mesh structure.

76. The method as recited in claim 71 wherein the step of radially reducing the thickness of at least a portion of the crushable layer further comprises radially reducing the thickness of at least a portion of a corrugated structure.

77. A method for delivery of a treatment chemical into a downhole environment comprising the steps of:

impregnating the treatment chemical within a carrier material disposed about a tubing string;

running the carrier material downhole on the tubing string; and

releasing the treatment chemical into the downhole environment from the carrier material.

78. The method as recited in claim 77 wherein the step of impregnating the treatment chemical within a carrier material further comprises the step of impregnating the treatment chemical within pores in an open cell foam.

79. The method as recited in claim 77 further comprising the step of selecting the treatment chemical from a group consisting of powders, tablets and beads.

80. The method as recited in claim 77 further comprising the step of selecting the treatment chemical from a group consisting of mud breakers, oxidizers, enzymes, hydrolyzable esters, acids, scale inhibitors, biocides, corrosion inhibitors and paraffin inhibitors.

81. The method as recited in claim 77 wherein the step of running the carrier material downhole on a tubing string further comprises the step of disposing a carrier material exteriorly of an expandable sand control screen in a compressed position.

82. A method of production profile management comprising the steps of:

disposing a compressible filler material exteriorly of an expandable sand control screen in a compressed position, the compressible filler material having at least one permeable section and at least one impermeable;

running the expandable sand control screen into the wellbore;

expanding the expandable sand control screen downhole;

releasing the compressible filler material from the compressed position such that the compressible filler material contacts the wellbore; and

isolating sections of the wellbore from one another with the at least one impermeable section of the filler material.

83. The method as recited in claim 82 further comprising the step of disposing a removable outer wrapper exteriorly of the compressible filler material to temporarily maintain the compressible filler material in the compressed position.

84. The method as recited in claim 82 further comprising the step of selecting the permeable sections of the compressible filler material from the group consisting of open cell foams, steel wools and fiberglass wools.

85. The method as recited in claim 82 further comprising the step of selecting the permeable sections of the compressible filler material from the group consisting of resins, polyolefins, polyurethanes, polyvinylchlorides, metals and ceramics.

86. The method as recited in claim 82 further comprising the step of selecting the impermeable sections of the compressible filler material from the group consisting of closed cell foams, gels, resins, elastomers and rubbers.